ADULT AND PEDIATRIC BLOOD AND MARROW TRANSPLANT PROGRAM

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APBMT-COMM-001
DONOR SELECTION, EVALUATION, AND MANAGEMENT

1 PURPOSE

1.1 To define the steps for donor selection, procurement, workup, evaluation, clearance, and management for the donation of allogeneic and autologous cellular products in the adult and pediatric blood and marrow transplant (BMT), which includes cellular therapy (CT), programs. Donations may consist of any of the following:

1.1.1 Mobilized or non-mobilized peripheral blood
1.1.2 Directed and unrelated donor umbilical cord blood collection
1.1.3 Directed and unrelated bone marrow collections
1.1.4 Donor lymphocyte infusions (DLI) collections
1.1.5 Natural killer (NK) cell collections
1.1.6 Chimeric antigen receptor T-cell (CAR-T) therapy
1.1.7 Directed donor granulocytes collection
1.1.8 Other supportive care, such as research studies

2 INTRODUCTION

2.1 The multidisciplinary BMT care team, led by the recipient’s primary physician, will make the final determination of the treatment protocol and source of donor cells. Once determined, all donors, both allogeneic and autologous, must be cleared by medical personnel.

2.2 Adult and pediatric patients undergoing hematopoietic stem cell transplant (HSCT) are affected by a variety of diagnoses. Autologous and allogeneic transplants are performed in both adult and pediatric populations. Cells are obtained from bone marrow (BM), umbilical cord blood (UCB), or by peripheral blood donations of progenitor cells (PBPC), stem cells (PBSC), or mononuclear cells (PBMCs). These donations help to facilitate marrow rescue after high dose chemotherapy in patients with certain high-risk hematologic malignancies or recurrent solid tumors.

2.3 Other peripheral donations such as granulocytes, DLI, and NK cell collections may be utilized in the peri-transplant period to enhance protection against opportunistic pathogens or graft versus tumor effects.

2.4 Chimeric antigen receptor T-cell (CAR-T) therapy is utilized in the treatment of some types of cancer. Autologous CAR-T therapy is a treatment in which a patient's T-cells are changed in a laboratory so they will attack cancer cells by taking T-cells from the patient’s peripheral blood, and adding a gene that then binds to a certain protein on the patient’s cancer cells. Once the T-cell has been modified, they are then given to the patient by infusion.
2.5 Cell products from related donors are used as indicated by medical practice under 21 CFR 1271 and Public Health Service Act Section 361. Unrelated donor products are obtained through the National Marrow Donor Program (NMDP), Be the Match Registry. More than minimally manipulated cells from unrelated donors, such as DLIs, aldehyde dehydrogenase bright cells (ALDHbr), or CD-34 donations, may be used under IND per FDA 21 CFR 1271, 361.

3 SCOPE AND RESPONSIBILITIES

3.1 Physicians, Nurse Coordinator/Clinicians (NC), Transplant Coordinators (TC), Register Nurses (RN), Advanced Practice Providers (APPs), Research Coordinators, and Medical Technologist/Clinical Laboratory staff are required to follow these guidelines.

4 DEFINITIONS/ACRONYMS

4.1 ABMT Adult Blood and Marrow Transplant
4.2 ABO Blood Type
4.3 ALDHbr Aldehyde dehydrogenase bright cells
4.4 APBMT Adult and Pediatric Blood and Marrow Transplant
4.5 APP Advanced Practice Providers
4.6 ASHI American Society of Histocompatibility Immunogenetics
4.7 BM Bone Marrow
4.8 BMT Blood and Marrow Transplant
4.9 CAP College of American Pathologist
4.10 CAR-T Chimeric Antigen Receptor T-cell
4.11 CBC/diff Complete Blood Count with Differential
4.12 CD34 CD-34 antigen on white blood cells
4.13 CFR Code of Federal Regulation
4.14 CLIA Clinical Laboratory Improvement Amendments
4.15 CMP Complete Metabolic Profile
4.16 CVC Central Venous Catheter
4.17 DLI Donor Lymphocyte infusion
4.18 EKG Electrocardiogram
4.19 EMR Electronic Medical Record
4.20 FACT Foundation for the Accreditation of Cellular Therapy
4.21 FDA Food and Drug Administration
4.22 G-CSF Granulocyte-Colony-Stimulating Factor
4.23 H&P History and Physical
4.24 HCG  Human Chorionic Gonadotropin
4.25 HLA  Human leukocyte antigen
4.26 HSCT Hematopoietic Stem Cell Transplant
4.27 IND  Investigational New Drug
4.28 IR   Interventional Radiology
4.29 PIV  Peripheral Intravenous
4.30 Mg   Magnesium
4.31 NC   Nurse Coordinator
4.32 NK   Natural Killer Cells
4.33 NIH  National Institute of Health
4.34 NMDP National Marrow Donor Program
4.35 PBMC Peripheral Blood Mononuclear Cells
4.36 PBMT Pediatric Blood and Marrow Transplant
4.37 PBPC Peripheral Blood Progenitor Cells
4.38 PBSC Peripheral Blood Stem Cell
4.39 PRA  Panel Reactive Antibodies
4.40 RBC  Red Blood Cell
4.41 Rh   Antigen in Blood either positive or negative
4.42 RN   Registered Nurse
4.43 STCL Stem Cell Laboratory
4.44 TC   Transplant Coordinator
4.45 UCB  Umbilical Cord Blood

5 MATERIALS
5.1 NA

6 EQUIPMENT
6.1 NA

7 SAFETY
7.1 NA

8 PROCEDURE
8.1 Donor Selection
8.1.1 Donors are evaluated to determine whether they are candidates for autologous or allogeneic transplantation and, within each category,
which type of cellular graft is their best option. Alternative collection methods will be discussed.

8.1.2 If an allogeneic transplant is determined to be the best option, a donor search is performed using related donors or through NMDP for unrelated donors.

8.1.2.1 Information regarding the donation process will be provided to the potential donor prior to human leukocyte antigen (HLA) typing. Refer to Section Titled “HLA Typing (Allogeneic donors, both related and unrelated)” for more information regarding the need for HLA typing.

8.1.2.2 Both related and unrelated donor options are evaluated for donor suitability.

8.1.2.2.1 The best available donor choice and cellular therapy type will be based on the recipient’s diagnosis, disease state, and co-morbidities.

8.1.2.3 When using peripheral or BM donations from allogeneic related or unrelated donor, the clinical team should determine the number of cellular therapy donations permitted by the individual donor.

8.1.2.3.1 At a minimum, the allogeneic donor’s medical comorbidities, peripheral blood counts, and iron status will be considered in the decision making process for multiple donations.

8.1.2.4 If there are two or more suitable donors, the attending physician will determine which donor will be selected considering all aspects of the donor’s availability, HLA type match, and donor workup findings.

8.1.2.5 If a matched related or unrelated donor is not available, a mismatched related (haploidentical), mismatched unrelated, or UCB donors are evaluated for use.

8.1.2.6 If an UCB is utilized, the units under consideration for selection will be HLA typed utilizing an attached segment to the cryopreservation bag in which the unit was banked. If a segment is not available, the unit will not be selected for the patient.

8.1.3 Donor age-specific and size-specific considerations will be applied.

8.1.3.1 Age appropriate considerations will be applied to minor donors (less than (<) 18 years of age) and older (greater than (>)) 60 years of age) donors.

8.1.3.2 Minor donors (less than (<) 18 years of age):

8.1.3.2.1 The collection will occur within the pediatric program utilizing the standard of care for
screening, sedation, and if indicated, general anesthesia and line placement. Each will be performed by pediatric specialists in those fields.

8.1.3.3 Older pediatric donors (donors greater than or equal to (≥) 18 years of age donating to a pediatric patient)

8.1.3.3.1 The pediatric clinical team will consult with colleagues in the adult program as needed. The pediatric clinical team will determine if additional consultations are needed for line placement, transfusion, iron therapy, and/or Vitamin K therapy. Follow-up will be assessed and coordinated by the primary team.

8.1.3.4 Adult donors (donors greater than or equal to (≥) 18 years of age donating for adult patients or donors greater than (>) 18 years of age donating to a pediatric patient.

8.1.3.4.1 Depending on the type of collection and the recipient, the collection will occur within the adult or pediatric program utilizing the standard of care for screening, sedation, and if indicated, general anesthesia and line placement.

8.1.3.5 The adult and/or pediatric patient’s size determines if the apheresis machine will require a blood prime. Refer to APBMT-COLL-001 Optia Blood Prime Procedure.

8.2 Donor Advocates

8.2.1 Following the Donor Registries for BMT, Technology Assessment (NIH Office of Medical Applications of Research, 1985) the role of the advocate is to:

8.2.1.1 Help ensure that the donor consent is made without time pressure and with full information.

8.2.1.2 Enhance the personal attention given to the donor during procedures.

8.2.1.3 Help prevent unnecessary inefficiencies and discomfort.

8.2.1.4 Mobilize official expressions of gratitude after the donation.

8.2.1.5 Aid in the resolution of subsequent problems.

8.2.2 All donors will be assigned a donor advocate whose primary obligation is to help the donor understand the risks and benefits of donation and promotes the interest, well-being, and safety of the donor.

8.2.2.1 The donor advocate will be either a social worker or another provider not involved in the recipient’s care.
8.2.2.2 The donor advocacy role will be documented.

8.2.3 Additionally, donors who are mentally incapacitated or not capable of full consent, including minors, will have their best interest represented by a parent/legally authorized representative or another authorized medical decision-maker.

8.2.3.1 A donor advocate will be utilized to appropriately counsel the donor and protect them from unsafe or futile donation procedures.

8.2.3.2 A donor advocate will be available if concerns are raised regarding whether the best interests of these individuals are being adequately protected.

8.3 Donor Consent

8.3.1 Donor informed consent for the cellular therapy product collection shall be obtained and documented by an advanced licensed health care professional knowledgeable in the collection procedure and copies are provided to the collection facility prior to collection.

8.3.2 Before signing the written consent, the donors will undergo an educational session with either the nurse (RN), nurse coordinator (NC), and/or transplant coordinator (TC) who are trained to be able to transmit information appropriately and in a clear manner.

8.3.2.1 These educational sessions are explained in terms the donor can understand, in their native language, and opportunities will be given to ask questions if needed.

8.3.2.2 Topics will include, as applicable for each donor:

8.3.2.2.1 Details of the planned procedure

8.3.2.2.2 Possible central venous catheter (CVC) line placement

8.3.2.2.3 Growth factor administration

8.3.2.2.4 Expected complications

8.3.2.2.5 Potential risks and benefits

8.3.2.3 For more information regarding the donor consenting process, please refer to the following procedures for the adult and pediatric programs respectively: ABMT-GEN-024 Autologous and Allogeneic Donor Consenting and PBMT-GEN-059 Autologous and Allogeneic Donor Consenting Procedure.

8.4 Donor Evaluation

8.4.1 The Adult and Pediatric Blood and Marrow Transplant (APBMT) programs evaluate autologous and related allogeneic donors. Examinations, questionnaires, medical reviews, lab tests, and/or
procedures are done to protect the health of the donor and the recipient and to prove eligibility per FDA donor regulations (21 CFR Part 1271).

8.4.2 Donor evaluation information will be documented on the Duke Hospital Universal H&P (history and physical) Form or related document.

8.4.2.1 APBMT Clinic Notes are utilized for subsequent documentation not captured in the H&P during any outpatient visit.

8.4.2.2 Documentation is maintained in the electronic medical record as per internal policy.

8.4.3 Unrelated allogeneic donors are evaluated by the registry that facilitates donation for transplantation (i.e. NMDP).

8.4.4 All autologous and allogeneic evaluations are performed in a private clinic examination/consultation room where all information may be confidentiality maintained. The NC and/or TC, as it is program-specific, will coordinate one or more clinic visits for donor evaluation.

8.4.4.1 For allogeneic donors, the NC/TC will arrange the donor workup to be concomitant with the recipient’s pre-transplant workup.

8.4.5 All donors will undergo the following during these visits:

8.4.5.1 Review of current medications.

8.4.5.2 Donor screening labs and age-appropriate related testing, performed during evaluation to rule-out issues that may result in disease transmission from the donated cellular therapy product to the recipient per FDA donor regulations (21 CFR Part 1271). Refer to APBMT-COMM-001 JA2 Collection of Donor Blood Samples for Infectious Disease Testing for more information regarding donor infectious disease testing.

Physical examination

8.4.5.2.1 Autologous donors – exam will be performed by a physician or APP for autologous donors.

8.4.5.2.2 Related allogeneic donors – exam will be performed by a physician or APP that is not the primary transplant team overseeing the care of the recipient.

8.4.5.3 Medical record review that will assess for signs of IV drug abuse, heart disease, coagulation problems, and/or hypertension.

8.4.5.4 Donor screening questionnaires including vaccination, travel, and blood transfusion histories will be reviewed.
8.4.5.5 Procedures may include but are not limited to Electrocardiograms (EKG).

8.4.6 The clinical program is responsible for informing the collection facility and processing facility, as applicable, of donor test results or if any testing which was not performed.

8.5 Donor Questionnaire APBMT-COMM-001 FRM3 Donor Health History Questionnaire

8.5.1 Guidelines for Use:

8.5.1.1 Pediatric program: The donor, or the parent or legally authorized representative in the case of a minor (less than (<) 18 years of age), will be provided with the questionnaire.

8.5.1.2 Adult program: The allogeneic donor will be provided with the questionnaire.

8.5.2 Questionnaire Completion:

8.5.2.1 The donor or the parent/legally authorized representative can complete the questionnaire independently, and return it to the NC for review. Assistance in completing the questionnaire will be provided if needed.

8.5.2.2 Donors will be required to complete sections that apply to them individually. In the case of a minor (less than (<) 18 years of age), the parent or legally authorized representative will complete sections that apply to the minor donor.

8.5.2.3 The TC and/or NC will use the APBMT-COMM-001 JA1 Medical History Exclusion Criteria as needed to assist the donor and/or parent/legally authorized representative in completing the questionnaire.

8.5.2.4 The donor’s NC and/or TC assisting with the donor history to identify any exceptions for donation will review the completed questionnaire and applicable supplements and addendums.

8.5.2.5 After obtaining this information, if any exceptions and/or answered questions indicating an increased risk of infectious disease transmission to the recipient, the physician will assess the risks and benefits of the donation.

8.5.2.5.1 If the physician deems that the donation should occur despite the exception, he/she will document this on the questionnaire.

8.5.2.5.2 If the physician deems that the donation should not occur, the donation will be canceled and the donor will be informed of this decision.

8.5.3 Supplements to the Questionnaire:
8.5.3.1 Supplemental donor education material titled “Important Information You Must Know for Donations to Stem Cell Transplant Patients” is attached to the questionnaire.

8.5.3.1.1 This will be provided, at a minimum, to all allogeneic donors greater than or equal to (≥) 16 years of age.

8.5.3.1.2 This material may also be provided to other donors at the clinician's discretion.

8.5.3.2 Donor History Questionnaire Addendum (see related procedure COMM-QA-081 Utilization of a Donor Medical History Addendum) will be provided to donors as a supplement to the questionnaire when required, as applicable.

8.5.3.2.1 Staff members administering the donor questionnaire should check to see if any addendums are active/required at the time of questionnaire administration. Addendums will be designated as a form (COMM-QA-081 FRM XX).

8.5.4 Document Storage:

8.5.4.1 The completed questionnaire will be signed and scanned in the electronic medical record (EMR) and the original will be sent to Stem Cell Laboratory (STCL) to file in laboratory file.

8.5.5 Questionnaire Time frame:

8.5.5.1 The questionnaire will cover the entire donation period of 30 days for peripheral blood collections (PBSC, PBMC, and PBPC), CAR-T, BM, and dedicated granulocyte donations.

8.5.5.2 The questionnaire is good for the 7-day donation period for a DLI and/or NK Cell donations unless there is a change in donor status.

8.5.5.3 If a donor is donating multiple times or if more than 30 days elapse from the initial donor qualification and the day of the actual donation, the NC, TC, and/or RN will re-administer and update the questionnaire. The same procedure for reviewing and noting exceptions applies to each administration of the questionnaire.

8.5.6 Donor Test Requirements

**NOTE:** If any testing results are out of the normal range, the donor’s physician will review the result and appropriate therapy will be prescribed, if indicated.
8.5.7 Routine labs - All donors will have routine labs performed. This may include:

8.5.7.1 Chemistry panels (CMP)
8.5.7.2 Magnesium
8.5.7.3 Coagulation factors
8.5.7.4 Human chorionic gonadotropin (HCG)

8.5.8 Additional testing:

8.5.8.1 Blood count with differential (CBC/diff) – which will be tested within 24 hours of the first apheresis collection or more often if clinically indicated, and reviewed by the physician/APP.

8.5.8.2 The donor will be evaluated for the risk of hemoglobinopathy and if indicated hemoglobin electrophoresis will be performed prior to the administration of the mobilization agents.

8.5.8.3 A pregnancy test using serologic or urinalysis is performed on females of childbearing age within seven (7) days prior of the donor donating either non-mobilized or mobilized cells and, as applicable, within seven (7) days prior to of initiation of G-CSF administration, anesthesia administration, and the recipient’s conditioning regimen.

8.5.8.3.1 Exempt from the pregnancy testing are females: who have had a hysterectomy, are over the age of 55, who are age 50 or greater with 12 months since last menses, who are age 45 or greater with 18 months since last menses. The pregnancy assessment (if testing is not indicated) will be addressed in the physician note.

8.5.8.3.2 Documentation of a negative pregnancy test and/or pregnancy assessment must be obtained.

8.5.9 HLA Typing (Allogeneic donors, both related and unrelated):

8.5.9.1 HLA typing is obtained on all allogeneic donors using DNA high-resolution typing at a minimum of one (1) time from the prospective donor and the recipient from an American Society of Histocompatibility Immunogenetics (ASHI) certified laboratory and/or College of American Pathologist (CAP) accredited.

8.5.9.2 High-resolution HLA-typing is performed and utilized for final donor selection. Confirmatory HLA typing is performed for all donors and recipients so that each pair is
typed twice and a minimum of one of the typings is at high resolution.

8.5.9.3 Typing includes at a minimum HLA-A, B, and DRB1 type for all allogeneic donors and HLA-C type for unrelated allogeneic donors and allogeneic donors other than siblings.

8.5.9.4 If the recipient has a history of alloimmunization, an anti-HLA antibody screen (PRA) will be obtained from the allogeneic donor. If anti-HLA antibodies are present, every effort will be made to select an allogeneic donor who is negative for these antigens/alleles. If this is not possible, a desensitization program will be considered prior to or as part of cytoreduction.

8.5.10 ABO group and Rh type/Type and Screen:

8.5.10.1 Allogeneic donors and recipients will be tested for ABO group and Rh type/Type and Screen (which includes red cell antibody) using two independently collected samples.

8.5.10.2 Results shall be confirmed prior to administration of the preparative regimen, mobilization, or cellular therapy product collection, whichever is earliest.

8.5.10.3 If discrepancies are noted, another ABO group and Rh type/Type and Screen will be drawn from the donor/recipient. Discrepancies will be resolved and documented in the donor/recipient’s EMR before the issue of the cellular therapy product.

8.5.10.4 Autologous donors: Two independently collected ABO/Rh or Type and Screen samples are obtained from autologous donors before the issue of cellular therapy products.

8.5.11 Infectious Disease Testing Requirements and Documentation:

8.5.11.1 Refer to APBMT-COMM-001 JA2 Collection of Donor Blood Samples for Infectious Disease Testing for all required testing, as well as common eligibility labs collected by Duke.

8.5.11.2 Testing for infectious disease is performed per the Foundation for the Accreditation of Cellular Therapy (FACT) requirements by a Clinical Laboratory Improvement Amendments (CLIA) certified laboratory for donor screening using the Food and Drug Administration (FDA) approved or cleared donor-screening kits.

8.5.11.3 Timeline:

8.5.11.3.1 For donors undergoing collection for peripheral donations (PBSC, PBMC, and PBPC), CAR-T, BM, and dedicated granulocyte donors, infectious disease testing
will be completed within 30 days of the collection, unless outlined specifically by a study.

8.5.11.3.2 Donors donating over the 30 days will have these tests repeated.

8.5.11.3.3 For all donors undergoing collection for NK or DLI collections, infectious disease testing will be completed within 7 days of the collection.

8.5.11.3.4 Donors donating over the 7 days will have these tests repeated.

8.5.12 Unrelated UCB donors are tested by the cord blood bank at the time of procurement of the cord blood donation. This information is provided to the transplant center through the NMDP data systems.

8.5.13 Donor Testing Documentation and Storage:

8.5.13.1 The results of FDA and eligibility required testing will be documented on APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing. The original APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing form will be scanned into the EMR and accompany each collected product to the STCL.

8.6 Donor Ineligibility

8.6.1 Donor ineligibility at the time of donation and reinfusion is based on information found on the APBMT-COMM-001 FRM3 Donor Health History Questionnaire (at a minimum all allogenic donors greater than (>18 years of age) and APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing.

8.6.2 Pending Results:

8.6.2.1 If the donor is an allogeneic, autologous, and/or autologous immune effector cell donor with PENDING results at the time of donation, refer to APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing Section B: Donor Eligibility Pending at Time of Donation.

8.6.3 Document donor ineligibility at the time of infusion, whether ineligible by infectious testing, or whose donor eligibility determination by the questionnaire and addendum. If applicable, the clinical program will review the APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing, Section C: Donor Eligibility Approval Met for Donation and/or Infusion.

8.6.3.1 Related allogeneic donors: Check the “No” box of the source of ineligibility, then print, sign, and date the form. Lastly,
check the “Related Allogenic” box and proceed to “Section D: Emergency/Exceptional Release for Cellular Product”.

8.6.3.2 Unrelated allogeneic (NMDP) donors: Check the “No” box of the source of ineligibility, then print, sign, and date the form. Lastly, check the “NMDP Out-going Product” box and refer to the Declaration of Urgent medical Need Ineligible/Incomplete Adult Donor Form supplied by NMDP.

8.6.4 In the event cellular therapy products need to be distributed before the completion of donor eligibility determination, there will be documentation that donor eligibility determination was completed during or after the use of the product. Refer to APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing Section D: Emergency/Exceptional Release for Cellular Product.

8.6.5 The use of an ineligible allogeneic cellular therapy product requires documentation of the rationale for the donor’s selection and suitability and written informed consent of the donor and/or the recipient. See APBMT-COMM-001 FRM1 Request and Authorization Form for the Donation and/or Infusion of Emergency Cellular Products for consenting the recipient to receive an HSCT product from an ineligible donor.

8.6.6 Exceptions to Donation: See APBMT-COMM-001 FRM1 Request and Authorization Form for the Donation and/or Infusion of Emergency Cellular Products.

8.6.6.1 Exceptions to donation will be documented PRIOR to donation on the following forms:

8.6.6.1.1 APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing

8.6.6.1.2 APBMT-COMM-001 FRM3 Donor Health History Questionnaire, if applicable.

8.6.6.2 Completed forms will be:

8.6.6.2.1 Signed by the physician
8.6.6.2.2 Scanned into the donor’s EMR
8.6.6.2.3 Original copy will be delivered to STCL

8.6.6.3 The decision to use an Emergency/Exceptional Release product will require communication of such findings to the prospective donor and possible recommendations for follow-up. This discussion for both of which will be documented in the EMR.

8.6.6.3.1 In limited scenarios and at the discretion of the attending physician, there may be situations
where the physician deems donor ineligibility notification to the donor and/or the recipient is not necessary or in which consent may not be obtained as determined either by medical significance or otherwise. At such a time, this will be documented accordingly.

8.6.6.3.2 For unrelated donors collected at Duke for NMDP, results of positive donor screening tests will be provided to the NMDP who will inform the donor and prospective recipient as indicated.

8.6.6.4 The Emergency/Exceptional Release will cover the entire donation period of 30 days for peripheral donations (PBSC, PBMC, and PBPC), CAR-T, BM, and dedicated granulocyte donors and 7 days for NK or DLI collections.

8.7 Donor Clearance

8.7.1 Eligibility shall be confirmed and documented.

8.7.1.1 In the case of an allogeneic donor, eligibility will be documented in the recipient’s medical records before the recipient’s preparative regimen is initiated and before the allogeneic donor begins mobilization regimen when mobilization is required.

8.7.1.1.1 Records required for donor selection and eligibility determination will be in English or translated into English when crossing international borders.

8.7.1.2 All donors must be cleared before donation for the following as applicable to each donor:

8.7.1.2.1 Apheresis procedure(s)
8.7.1.2.2 BM procedure(s)
8.7.1.2.3 Not currently pregnant
8.7.1.2.4 Anesthesia administration for BM procedures
8.7.1.2.5 Adequate peripheral venous access or CVC placement
8.7.1.2.6 Growth factor administration

8.7.1.3 The donor and the recipient, if applicable must demonstrate that he/she can:

8.7.1.3.1 Be compliant with the medications prescribed by their physician.
8.7.1.3.2 Manage a CVC, or report to care sites within the health system for this care.
8.7.1.3.3 Be compliant with appointments, generally twice per week.
8.7.1.3.4 Be able to avoid contact sports or contact activities during work or other daily responsibilities.

8.7.2 In addition, allogeneic donors must be evaluated and cleared for the following:

8.7.2.1 Infectious diseases
8.7.2.1.1 Testing must be negative or, if positive, cleared by the donor’s physician
8.7.2.2 General anesthesia for marrow donation, if applicable

8.8 Donor Thresholds

8.8.1 Adult autologous donors must have adequate levels of the following prior to each collection:

8.8.1.1 Hemoglobin ($\geq 8$ g/dL) *
8.8.1.2 Platelet count ($\geq 15,000/\mu L$)

NOTE: The autologous donor may donate with hemoglobin between 7 and 7.9 g/dL if the autologous donor is receiving a blood transfusion at the end of the collection procedure.

8.8.2 Adult allogeneic peripheral blood donors must have adequate levels of the following before each collection:

8.8.2.1 Hemoglobin ($\geq 9$ g/dL)
8.8.2.2 Platelet count ($\geq 50,000/\mu L$)

8.8.3 Granulocyte donors must have the following before each collection:

8.8.3.1 Hemoglobin ($\geq 10$ g/dL)
8.8.3.2 If hemoglobin is $< 10.5$ g/dL, check the hemoglobin the day before the next planned collection.

8.8.3.2.1 If the hemoglobin is $\geq 10$ g/dL, proceed with the procedure the next day without waiting for labs that are drawn at the time of the procedure.
8.8.3.2.2 If the hemoglobin is less than $< 10$ g/dL, skip the procedure and recheck the day before the next planned procedure.

8.8.4 Pediatric donors must have adequate hemoglobin and platelet counts before each collection.

8.8.4.1 Pediatric donors weighing less than 50 kg, for which the cell separator is primed with packed red cells, the pre-apheresis
parameters are hemoglobin > 9 g/dL and platelet count ≥ 75,000/μL.

8.8.4.2 Pediatric patients weighing more than 50 kg, for which the cell separator is NOT primed with packed red cells, the pre-apheresis parameters are a hemoglobin > 10 g/dL and a platelet count > 75,000/μL.

8.8.5 Returning Donors:

8.8.5.1 Adult allogeneic donors returning for peripheral blood donation or BM donation within 6 months of original donation must have the items listed below reviewed by their primary BMT clinical team and be cleared for repeat donation. A progress note must be documented to support approved clearance.

8.8.5.1.1 Previous medical records, tests, and labs.

8.8.5.2 Adult allogeneic donors returning for peripheral blood donation or BM donation greater than 6 months of original donation must have:

8.8.5.2.1 A full repeat donor selection evaluation.

8.8.5.3 Any original adult allogeneic peripheral blood donor returning for DLI donation must have the items listed below reviewed by their primary BMT clinical team and be cleared for repeat donation. A progress note must be documented to support approved clearance:

8.8.5.3.1 Previous medical records, tests, and labs.

8.8.6 Multiple donations:

8.8.6.1 For donors donating multiple times consecutively, additional parameters should be considered. These donors are more likely to become iron deficient, hypokalemic, or hypoproteinemic over longer donation times. As such, these donors require more careful monitoring and follow-up.

8.8.7 Allogeneic donors may be pretreated with therapeutic iron and/or vitamin K.

8.9 Donor Collections

8.9.1 A written order from a physician specifying, at minimum, anticipated date and goals of collection and processing shall be documented. Refer to STCL-FORM-041 Doctors Orders Adult Stem Cell Transplant Program and PBMT-COLL-016 Pediatric Apheresis Order Using Optia.

8.9.2 There shall be written documentation of any donor health or safety issues pertaining to the collection procedure in writing to the Apheresis Collection Facility. Collection staff shall document a review of these issues prior to the collection.
8.9.3 Donor apheresis consent must be reviewed prior to the collection.

8.9.4 Peripheral Blood Access:

8.9.4.1 The appropriate and safe positioning and function of a CVC or peripheral intravenous catheter (PIV) is critical to the performance of the cellular therapy product collection by apheresis.

8.9.4.2 Adult allogeneic donors will have a peripheral vein assessment by an apheresis RN in consultation with the TC and the donor’s primary team. A plan for CVC placement or stand-by appointment will be made if needed on donation day. Adult allogeneic donors require a CVC only if peripheral vein access is inadequate or unsuccessful.

8.9.4.2.1 Allogeneic donors of granulocytes will have a CVC placed before their donations to avoid consecutive PIV sticks.

8.9.4.3 Autologous donors for peripheral blood donations may have a CVC or a PIV placed prior to collection.

8.9.4.3.1 Adult donors that will go directly to transplant will have a CVC placed.

8.9.4.4 A licensed, trained, and qualified physician qualified to perform the procedure, which may include pediatric surgeons, general surgeons, or vascular radiologists, places CVCs.

8.9.4.5 The correct placement of the CVC placed in Interventional Radiology (IR) is performed using ultrasound guidance and confirmed by radiograph. If CVC was placed in general surgery, a radiograph confirms placement. The confirmatory reports are located in the donor’s EMR.

8.9.4.6 Before the collection and use of a CVC, the collection facility RN staff must review the documentation of the CVC placement and appropriateness for use. The rationale for placement shall be documented in the donor’s EMR. If the CVC is placed at a referring hospital, a copy of the CVC confirmatory report is obtained and placed in the donor’s EMR.

8.9.5 Mobilization Administration:

8.9.5.1 Appropriate mobilization should be used for the disease being treated and for the donor being collected.

8.9.5.2 Mobilization requires an evaluation of any medical condition that would expose the donor to the risk of thrombotic events. This evaluation must be documented, including the pre-collection and collection period specific to growth factor
administration. For adult BMT, refer to ABMT-GEN-034
Colony Stimulating Factor Guidelines.

8.9.5.3 The donor will be evaluated for the risk of
hemoglobinopathy and if indicated hemoglobin
electrophoresis will be performed prior to the administration
of the mobilization agents.

8.9.5.4 Granulocyte Colony-Stimulating Growth Factors (G-CSF)
are administered under the supervision of a licensed
physician/APP experienced in the management of persons
receiving these agents.

8.9.5.4.1 Specific orders for each donor are generated
and filled by Duke’s inpatient/outpatient
pharmacy, local licensed pharmacies, or home
health pharmacies depending on the patient’s
arrangement with their third-party payer.

8.9.5.5 For pediatric donors:

8.9.5.5.1 The first dose of G-CSF is administered
usually by IV route in the clinic or on the
inpatient unit.

8.9.5.5.2 If the first dose is tolerated, subsequent doses
are administered either by nursing staff in the
clinic or inpatient unit, or their parent or legal
guardian outpatient after training has been
completed.

8.9.5.6 For adult donors:

8.9.5.6.1 G-CSF is generally administered by nursing
staff in the clinic or inpatient unit, or at home
by their caregiver or self-injection after
training has been completed by the
subcutaneous route a minimum of one hour to
a maximum of 12-16 hours before the next
planned procedure.

8.9.5.7 Donors may be mobilized with G-CSF depending on the
type of collection requested.

8.9.5.7.1 Mobilization for autologous PBSC donations
includes G-CSF +/- chemotherapy and if
indicated, Plerixafor (Mozobil) may be used.

8.9.5.7.2 Mobilization for allogeneic (PBSC,
granulocyte) donations may include G-CSF
and if indicated, Plerixafor (Mozobil).

8.9.5.8 The readiness parameter for PBSC apheresis is determined
by quantitation of the CD-34+ cells per microliter in the
peripheral blood.
8.9.5.8.1 This parameter is not used for granulocyte, CAR-T, DLI, or NK cell donors.

8.9.5.9 Quantitative targets and endpoints for PBSC donations are expressed as required CD-34+ cells per kilogram of the recipient’s body weight.

8.9.5.10 All quantitative cellular targets and endpoints are based on the type of apheresis procedure, apheresis volume, total cell counts, and protocols/treatment requirements.

8.9.6 Anesthesia Administration

8.9.6.1 A board-certified adult or pediatric anesthesiologist per internal hospital guidelines administers anesthesia.

8.9.6.1.1 Duke Hospital Certification Program approves the physicians administering the conscious sedation for bone marrow harvest donors.

8.9.7 Assessment of the Donor before each apheresis procedure:

8.9.7.1 The APBMT donor will have a minimum of a CBC/diff and ABO/Rh or Type and Screen drawn before each procedure.

8.9.7.2 A daily assessment of donor suitability for the collection procedure will be performed immediately before each collection procedure. Refer to the APBMT-COMM-001 FRM4 Interim Donor History Questionnaire.

8.9.7.2.1 If the donor is healthy and well, with no new issues, the apheresis RN will proceed with the apheresis procedure. If the donor has any medical issues, the apheresis RN will notify the BMT team for evaluation.

8.9.8 Bone Marrow Procedure:

8.9.8.1 BM donors will be screened the same as any peripheral blood donors.

8.9.8.2 Physicians and APP (if applicable) perform BM collection in a Duke Hospital Operating Room under sterile conditions. Refer to ABMT-COLL-017 Bone Marrow Harvest Procedure or PBMT-COLL-008 Bone Marrow Harvest Procedure for more information regarding BM harvesting.

8.9.9 Apheresis Procedure:

8.9.9.1 Cellular therapy products from all donors are collected on an automated cell separator. Refer to ABMT-COLL-019 Optia Continuous Mononuclear Cell (CMNC) Collection or PBMT-COLL-016 Optia Apheresis System Continuous Mononuclear Cell-CMNC Collection Procedure.

8.10 Donor Management
8.10.1 Management of Blood Loss:

8.10.1.1 If for any reason the blood contained in the apheresis machine cannot be returned to the patient, the volume of blood loss will be recorded on the ABMT-COLL-19 FRM Optia CMNC Run Sheet or PBMT-COLL-016 FRM1 Optia Leukapheresis Run Sheet. The BMT physician/APP will be notified.

8.10.1.1.1 Hematocrit may be drawn and transfusion arranged if necessary. Extracorporeal volumes can be recalculated based on the new hematocrit. A donor who has lost the equivalent volume of a whole blood donation will be advised that he/she be deferred from donation for 8 weeks. The donor may donate in less than eight weeks as long as the donor meets the criterion for hemoglobin naturally or via transfusion and is approved for donation by the medical director.

8.10.2 Management of Thrombocytopenia:

8.10.2.1 Apheresis donors may develop thrombocytopenia, especially after repeated, frequent donations.

8.10.2.2 For autologous donors in the Pediatric program, the donor requires minimum labs values as stated in Section Titled “Donor Thresholds”. At the completion of the apheresis procedure, a post blood count may be obtained to verify the donor is still within the required lab values.

8.10.2.3 For autologous donors in the Adult program, the apheresis procedure generally cuts the original platelet count in half in a 6-hour procedure. A platelet infusion may be required if suspected platelet count after a 6-hours collection is less than (<) 25,000/µL. The patient may be discharged after the apheresis procedure if the platelet count is greater than (≥) 25,000/µL.

8.10.2.4 For allogeneic donors in the APBMT program, the apheresis procedure is discontinued if the donor’s platelet count is < 50,000/µL. A prescription may be given to the donor for a CBC to be drawn at an outside blood lab, with results faxed to the TC and/or BMT team.

8.10.2.5 For the NMDP donors, the apheresis procedure is discontinued if the donor’s platelet count is < 80,000 /µL.

8.10.3 Management of Hypocalcemia:

8.10.3.1 Many donors develop hypocalcemia during the apheresis procedure. In anticipation of this potential complication:
8.10.3.1.1 All pediatric and adult donors are placed on a calcium infusion preemptively to the apheresis procedure.

8.10.3.1.2 If an adult donor experiences citrate toxicity related to apheresis, the APBMT-COLL-014 \textit{Heparin Protocol} can also be instituted.

8.11 Post Apheresis/Marrow Procedure Donor Management:

8.11.1 APBMT autologous and allogeneic donors are given printed educational information describing the apheresis or BM donation processes. The contact phone numbers are listed for each clinic and aftercare.

8.11.2 APBMT team will manage the donor for apheresis or BM related events that require follow-up. Follow-up care will be coordinated by the TC/NC for donors who live out of the Duke Hospital vicinity.

8.11.2.1 All allogeneic donors will be called or seen in the clinic within 24 to 72 hours post collection. Even if there are no issues reported, the TC/NC will call within four to six weeks post collection to inquire about the donor condition. If there are issues or concerns, will call weekly until all issues have been resolved. All documentation will be recorded in the EMR.

8.11.3 Staff from the Stem Cell Laboratory (STCL) will report positive cultures for any cellular product to the patient’s Attending Physician. (See related STCL procedures: STCL-QA-007 \textit{Non-Conforming Products- Receipt, Processing, Distribution, and Disposition}; STCL-EQUIP-011 \textit{Sterility Culture Using BacT-Alert Microbiology System}.)

8.11.3.1 The physician will assess confirmed positive sterility results for medical significance and a determination will be made regarding whether the donor and/or recipient should be notified and/or treated. If warranted, a treatment plan will be initiated. If indicated, the treatment plan will be based on the organism detected and may include blood cultures, antibiotic therapy, possible central line removal, and re-collection of cells if the product must be discarded.

8.11.4 All apheresis adverse events must be documented on APBMT-COMM-030 FRM1 \textit{Adverse Event Form} per procedure APBMT-COMM-030 \textit{Recording and Reporting of Adverse Events}. All serious or high-grade adverse events will be documented in the physician’s note and reported to the Duke Hospital Safety Reporting System (SRS).

8.11.5 In the event there is a collection-related complication, the collection facility will notify the clinical program for the ongoing management of the specific complication(s).

8.11.6 If the collection-related event occurs with a donor from a registry, the clinical program will notify that registry of the complication and management.
8.12 Confirmation of Cellular Therapy Products:

8.12.1 The APBMT physician will confirm the availability and suitability of a donor or cellular therapy product before initiating the recipient’s preparative regimen.

8.12.2 The clinical program will notify the processing facility (STCL) before requesting a cellular therapy product from a cord blood bank, registry, or another facility.

9 RELATED DOCUMENTS/FORMS

9.1 ABMT-COLL-014 Heparin Protocol
9.2 ABMT-GEN-034 Colony Stimulating Factor Guidelines
9.3 ABMT-COLL-19 FRM Optia CMNC Run Sheet
9.4 ABMT-COLL-019 Optia Continuous Mononuclear Cell (CMNC) Collection
9.5 ABMT-GEN-024 Autologous and Allogeneic Donor Consenting
9.6 PBMT-GEN-059 Autologous and Allogeneic Donor Consenting Procedure
9.8 PBMT-COLL-016 FRM1 Optia Leukopheresis Run Sheet
9.9 APBMT-COMM-001 FRM1 Request and Authorization Form for the Donation and/or Infusion of Emergency Cellular Products
9.10 APBMT-COMM-001 FRM2 Summary of Donor Eligibility and Infectious Disease Testing
9.11 APBMT-COMM-001 FRM3 Donor Health History Questionnaire
9.12 APBMT-COMM-001 FRM4 Interim Donor History Questionnaire
9.13 APBMT-COMM-001 JRA1 Medical History Exclusion Criteria
9.14 APBMT-COMM-001 JRA2 Collection of Donor Blood Samples for Infectious Disease Testing
9.15 APBMT-COMM-030 Recording and Reporting of Adverse Events
9.16 APBMT-COMM-030 FRM1 Adverse Event Form
9.17 APBMT-COLL-001 Optia Blood Prime Procedure
9.18 COMM-QA-081 Utilization of a Donor Medical History Addendum
9.19 STCL-QA-007 Non-Conforming Products- Receipt, Processing, Distribution, and Disposition;
9.20 STCL-EQUIP-011 Sterility Culture Using BacT-Alert Microbiology System

10 REFERENCES

10.2 Foundation for the Accreditation of Hematopoietic Cell Therapy (FACT).
Standards for Hematopoietic Progenitor Cell Collection, Processing and

10.3 Food and Drug Administration. 21 CFR 1271, Human Cellular and Tissue-Based
Products.

10.4 Public Health Service Act Section 361

11 REVISION HISTORY

<table>
<thead>
<tr>
<th>Revision No.</th>
<th>Author</th>
<th>Description of Change(s)</th>
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<tr>
<td>23</td>
<td>Mary Beth Christen</td>
<td>• The changes consist of updating/tweaking language in several sections according to the new FACT standards (8th Edition). Some updates include, but not limited to:</td>
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<td></td>
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<td>• the pregnancy test requirements for anesthesia (B6.3.5) Section 8.5.8.3.</td>
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<td>• information about the donation process prior to HLA testing (B6.4.2) Section 8.1.2.1.</td>
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<td>• the addition of the HLA testing being CAP accredited (B6.4.14) Section 8.5.9.1.</td>
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<td>• update to information about CVC management for donors and recipients (B5.1.5) Section 8.7.1.3 and 8.7.1.3.1.</td>
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<td>• update mobilization requirement based on diagnosis (B6.3.4) Section 8.9.5.1.</td>
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<td>• add information about records being in English when crossing international (B6.4.16) Section 8.7.1.1.1.</td>
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<td>• Updated and defined acronyms throughout the document.</td>
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<td>• Rearranged Section 8.1 for better readability and putting “Like” items together.</td>
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<td>• Added copies are provided to collection facility prior to collection in Section 8.3.1.</td>
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<td>• Updated the HLA typing requirements in Section 8.5.9.1.</td>
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<td>• Added the requirement of confirmation of ABO/RH prior to regimen, cellular product collection in Section 8.5.10.2.</td>
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<td>• Updated Section 8.9.4 for better readability.</td>
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<td>• Updated pediatric and adult GCSF mobilization.</td>
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<td>• Removed non-current anesthesia administration information.</td>
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<td>• Added the pediatric thresholds in Section 8.10.2.2.</td>
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# Signature Manifest

**Document Number:** APBMT-COMM-001  
**Title:** Donor Selection, Evaluation and Management  
**Effective Date:** 17 Aug 2021

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## APBMT-COMM-001 Donor Selection, Evaluation and Management

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